

EXPLANATION OF SIGNIFICANT DIFFERENCES

Maywood Chemical Company Superfund Site

Operable Unit 1: Non-FUSRAP Soil and Source Areas

SITE NAME AND LOCATION

Maywood Chemical Company Superfund Site
Boroughs of Maywood & Lodi and Township of Rochelle Park
Bergen County, New Jersey

INTRODUCTION

The purpose of this Explanation of Significant Differences (ESD) is to explain the United States Environmental Protection Agency's (EPA) changes to the remedy for soil and source areas selected in its September 2014 Record of Decision (OU1 ROD) for Operable Unit 1 (OU1) of the Maywood Chemical Company Superfund Site (Site), Non-FUSRAP Soil and Source Areas. The OU1 ROD was prepared by EPA as lead agency for the Site, in consultation with the New Jersey Department of Environmental Protection (NJDEP).

The OU1 ROD selected a remedy to address chemically contaminated soil and source areas, which consist of buried waste, at the Site. The remedy includes excavation and off-site disposal of soil and waste material contaminated with metals, volatile organic compounds (VOCs) and semi-volatile organic compounds (SVOCs), soil vapor extraction and the establishment of Institutional Controls (ICs) such as deed notices, easements or restrictive covenants to: maintain the long-term protectiveness of the remedy; ensure that future use remains commercial/industrial; and prevent future land uses that interfere with the implementation or protectiveness of the Selected Remedy on the OU1 properties. This ESD documents a change to the OU1 remedy to include residential properties adjacent to the current OU1 area where site-related contaminated soil and waste material were discovered during Pre-Design Investigation (PDI) activities. Key components of the OU1 remedy will remain the same, including the remedial goals established in the OU1 ROD. The overall Site is currently being addressed through four OUs, as described further herein.

Under Section 117(c) of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980, as amended (CERCLA or Superfund), 42 U.S.C. § 9617(c), EPA is required to publish an ESD when, after issuance of a ROD, subsequent enforcement or remedial actions lead to significant, but not fundamental, changes in the selected site remedy. Sections 300.435(c)(2)(i) and 300.825(a)(2) of the National Oil and Hazardous Substances Pollution Contingency Plan (NCP), 40 C.F.R. §§ 300.435(c)(2)(i) and 300.825(a)(2), set forth the criteria for issuing an ESD and require that an ESD be published if the remedy is modified in a way that differs significantly in scope, performance, or cost from the remedy selected in the ROD for the site.

This ESD presents the significant differences to the remedy selected in the OU1 ROD. This ESD also provides a brief history of the Site, describes the original remedy, and explains how, subsequent to the finalization of the decision document, issues concerning the scope and performance of the selected remedy have been identified.

This ESD and the documents that provide the basis for the ESD decision will be incorporated into the administrative record maintained for the Site in accordance with Section 300.825(a)(2) of the NCP, 40 C.F.R. § 300.825(a)(2). The administrative record file is available for review online at: <https://www.epa.gov/superfund/maywood-chemical>.

SITE LOCATION, HISTORY, CONTAMINATION PROBLEMS, AND SELECTED REMEDY

The Site, CERCLIS ID NJD980529762, is located in Maywood, Rochelle Park and Lodi, Bergen County, New Jersey, along the New Jersey State Route 17 corridor (see Figure 1). The Site is located approximately twelve miles northwest of New York City. The Site is surrounded by a heavily urbanized area of industrial, commercial and residential use. The overall Site encompasses at least 88 properties. Three of these properties, which were formerly owned by the Maywood Chemical Works, were included in the OU1 ROD.

The Maywood Chemical Works was founded in 1895 and manufactured a wide variety of chemical additives and products with operations located on 63 acres. Initial operations included a "standard essence" operation involving cerium, as well as extraction of protein from leather, production of aroma compounds called ionones, caffeine extraction, and production of lithium tablets. Operations from 1916 to 1955 involved processing radioactive thorium from monazite sands. The process resulted in thorium waste that, while known to be radioactive, was not considered particularly dangerous at that time. Other processing operations generated various types of waste products such as lanthanum, lithium compounds, detergents, alkaloids, essential oils, and products from tea and cocoa leaves. The waste material may have been used as fill in nearby areas (on the 88 properties noted above), and subsequently as fill on adjacent properties in Rochelle Park and on nearby properties in Maywood and Lodi during the construction of Route 17 in the 1930s.

The Stepan Company (Stepan) purchased a portion of the Maywood Chemical Works property in 1959 and began to clean up thorium wastes on the property in 1963. Stepan is currently the owner and operator of this portion of the original Maywood Chemical Works property, focusing on the production of specialty chemicals.

In October 1980, NJDEP investigated a citizen complaint about radioactive contamination at an area near Route 17 in Maywood and Rochelle Park, New Jersey. From 1980 through 1983, radiological surveys and sampling were performed in the area by NJDEP, EPA and U.S. Department of Energy (DOE). These studies revealed extensive radionuclide contamination and were the basis for the Site being included on the National Priorities List (NPL) in 1983.

From 1984 through 1986, DOE, acting under its Formerly Utilized Sites Remedial Action Program (FUSRAP) authority through the 1984 Energy and Water Appropriations Act (PL 98-50) which specifically addressed the Maywood Site, investigated and removed over 35,000 cubic yards of radioactively-contaminated soil and debris from nearby properties. This material was stockpiled and secured on 11.7 acres of Site land acquired from Stepan by the federal government.

From 1986 to 1988, EPA performed a preliminary study of chemical, non-radioactive pollutants. EPA's study indicated the presence of elevated concentrations of VOCs, SVOCs, metals, pesticides and other hazardous substances. The data from that sampling indicated the presence of both radiological and non-radiological contaminants in the soil. Chemical, non-radioactive contamination was found on three Site properties: (1) the Stepan property; (2) the Sears Logistics Center (Sears Property); and (3) the DeSaussure Equipment Corporation/Maywood Furniture Corporation property (DeSaussure Property).

The contamination sources and cleanup responsibilities at the Maywood Chemical Company Superfund Site are complex. The U.S. Army Corps of Engineers (USACE) is remediating FUSRAP waste, which includes radiological contamination, along with chemical contamination where it is co-located with radiological contamination on behalf of the federal government as the Site successor agency to DOE. Stepan is performing work under several administrative orders at the non-FUSRAP portions of the Site, including the remedial design (RD) for OU1, and the remedial investigation and feasibility study (RI/FS) for OU4.

FUSRAP waste is being addressed by the USACE through remedies selected in two separate RODs for the Site: a 2003 OU2 ROD for soil and building materials and a 2012 OU3 ROD for groundwater contamination. The FUSRAP cleanup work addresses radiological contamination on the 88 properties and radiological and chemical contamination at the 11.7-acre federal government-owned portion of the Site. EPA is responsible for oversight of both the USACE's cleanup activities and Stepan's work. EPA will select a remedy for the Non-FUSRAP Groundwater (OU4) portion of the Site at the conclusion of the RI/FS process. The four phases or operable units (OUs) of the remedial work at the Site are as follows:

Operable Unit 1: Non-FUSRAP Soil and Source Areas;
Operable Unit 2: FUSRAP Soil and Buildings;
Operable Unit 3: FUSRAP Groundwater; and
Operable Unit 4: Non-FUSRAP Groundwater.

The remedial action selected in the OU1 ROD addresses the remediation of chemically contaminated soil and waste material at the OU1 portions of the Site, as does the additional remediation outlined in this ESD.

AREAS OF CONCERN

The portion of the Site that is the subject of this ESD consists of eight separate properties formerly owned by the Maywood Chemical Company, three of which were the subject of the OU1 ROD, namely the Stepan Property, the Sears Property and the DeSaussure Property (See Figure 2). The five Areas of Concern (AOCs) addressed in the OU1 ROD are located on these three properties. Three AOCs are located on the Stepan property, while one AOC is located on the Sears property and one AOC is located on the DeSaussure property. The focus of this ESD is AOC 2, or the Gypsum Area (GA), located within the northern and northeastern portion of the DeSaussure property located at 23 Howcroft Road in Maywood (3.6-acres), shown on Figure 3. Further information on AOCs 1, 3, 4 and 5 can be found in the OU1 ROD.

The GA, as described in the OU1 ROD, encompasses approximately 1.5 acres of the DeSaussure property. Starting in the early 1900s, Citro Chemical Company (Citro) manufactured various chemicals at its Maywood plant located southeast of and adjacent to the present Stepan property. The exact dates of the Citro operation are unknown; however, Citro was in existence in 1940 and purchased by Pfizer Inc. in 1947. As much as 600 tons of gypsum filter aid material, which also contained cyanide and metals, were reportedly disposed of within the boundaries of the DeSaussure property. During the RI, gypsum waste material, soil, and groundwater samples were collected from this AOC. The results of these investigations indicated that polyaromatic hydrocarbons (PAHs), select metals and cyanide were detected in soil and gypsum waste material samples above screening criteria.

RECORD OF DECISION

The RI for OU1 was conducted from August 1991 through November 1992. In June 1993, EPA completed a baseline risk assessment for OU1 based on the RI findings. Additional investigations included a 1994 investigation of leather waste and chromium-contaminated soil on the Stepan property. The RI report was completed in November 1994. Additional groundwater testing, pilot tests and treatability studies were conducted from 1997 to 2006. The development of FSs to identify and evaluate remedial alternatives began in 1995 and the OU1 FS was completed in August 2013.

The Proposed Plan for the OU1 Non-FUSRAP Soil and Source Area remedial action was released to the public for comment on August 23, 2013. The public comment period was extended until December 5, 2013 at the request of Stepan. In September 2014, EPA issued the OU1 ROD, which established the following remedial action objectives:

- Prevent direct contact with contaminated soil above levels that are protective of human health;
- Prevent the migration of contaminated soil; and
- Prevent contaminated soil from impacting groundwater quality.

In order to meet those objectives, the major components of the selected remedy include the following:

- Excavation and off-site disposal of an estimated 29,100 cubic yards of soil and waste material contaminated with metals, VOCs and SVOCs at an approved off-site disposal facility;
- In-situ soil vapor extraction (SVE) and treatment of an estimated 3,220 cubic yards of VOC-contaminated soil; and
- The establishment of institutional controls (ICs), such as deed notices, easements or restrictive covenants to: maintain the long-term protectiveness of the remedy; ensure that future use remains commercial/industrial; and prevent future land uses that interfere with the implementation or protectiveness of the selected remedy.

The key components of the remedy for the GA included pre-design investigation (PDI); remedial design; excavation with dewatering in wetlands; off-site disposal of soil and waste material at a regulated facility; Site restoration including wetlands; and ICs to ensure that future use remains commercial/industrial. The OU1 ROD also estimated that approximately 6,250 cubic yards of gypsum waste material and soil would require excavation up to four feet below ground surface (bgs).

Note that, while not the focus of this ESD, a pilot study to evaluate the effectiveness of SVE/dual phase extraction (DPE) in AOC 4 (the Former Aromatics Area) was conducted in 2019. Based on a review of data from the pilot study it was decided that the contingency remedy (excavation) for this portion of OU1 will be implemented in lieu of SVE/DPE.

PRE-DESIGN

Since completion of the RI Report, USACE has remediated portions of the OU1 AOCs under the FUSRAP cleanup. In 2008, USACE excavated soil that meets the characteristics of FUSRAP material from approximately 0.50 acres of the GA and does not plan any more remediation at this time (inaccessible contamination remains beneath an existing building.) After removal of all accessible radioactively impacted material and co-mingled material, the USACE backfilled the excavations with clean fill and restored the area.

Under EPA oversight, Stepan conducted a PDI for the OU1 remedy to collect data in OU1 AOCs, as defined by the RI, at areas that were not remediated by the USACE as part of the FUSRAP cleanup. Within the GA, PDI sampling identified impacted soil from grade to a depth of approximately 5.0-ft bgs. Analytical results for soil sampling activities at the GA conducted as part of the PDI indicated concentrations of benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, barium, lead, mercury and cyanide above OU1 ROD remediation goals. Visual evidence of contaminated material, consisting of light grey and blue stained soft material, was also found throughout the GA at depths of 1.5 ft bgs to 5 ft bgs. Based on the results of the OU1 PDI sampling, EPA determined that additional delineation sampling extending onto the nine residential properties located immediately east of the GA, along Maywood Avenue, was necessary to further refine the extent of excavation required. An Addendum to the PDI Work Plan, approved by EPA on August 6, 2019, outlined the additional sampling to be conducted.

After obtaining access from eight of the nine residential property owners, the first phase of sampling was conducted in January 2020 (access to the ninth adjacent property was not obtained after multiple attempts). This sampling included the collection of soil from 2 or 3 soil borings per property placed along the line between the residential properties and the GA (i.e., within backyards). Soil samples were collected from the top 8 feet and analyzed for benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenzo(a,h)anthracene, cyanide, mercury, barium and lead. Where visual evidence of Site-related contamination was identified additional step out samples were taken.

A second mobilization was conducted to further delineate the extent of Site-related contaminated material in March 2020. Analytical results from sampling activities on the residential properties indicated concentrations of contaminants above OU1 ROD remediation goals. Four samples of waste material were also analyzed and were found to have concentrations of contaminants consistent with those found in nearby soil samples.

DESCRIPTION OF SIGNIFICANT DIFFERENCES

The selected remedy described in the OU1 ROD includes excavation of contaminated soil and waste material. The land uses identified during remedy selection for OU1 include properties zoned for limited light industrial activities in the Borough of Maywood and for industrial use in the Township of Rochelle Park. In keeping with the local land use trends and plans and to be consistent with the future land-use assumptions made in the 2003 OU2 ROD for FUSRAP soil and buildings, a future commercial land-use scenario was assumed for all properties. The OU1 selected remedy included excavation of soil contamination and waste material with concentrations exceeding a combination of NJDEP non-residential direct contact soil remediation standards, EPA risk-based screening levels for commercial/industrial land use, and NJDEP impact-to-groundwater soil screening levels (Table 1).

Additional sampling conducted as part of the OU1 PDI has identified contaminated soil and waste material at concentrations above the remedial goals in the OU1 ROD on residential properties. This ESD modifies the remedy to include residential properties, with the assumption that current and future land use will remain residential. A comparison of the original OU1 ROD goals to the current New Jersey residential direct contact soil remediation standards demonstrates that the original OU1 ROD remedial goals will meet the New Jersey residential standards and therefore will be protective for residential current and future use. Therefore, remedial goals from the 2014 OU1 ROD remain applicable, including on the residential properties. All elements of the remedy for the GA selected in the OU1 ROD remain the same, including PDI, remedial design, excavation with dewatering in wetlands, off-site disposal of soil and waste material at a regulated facility and Site restoration including wetlands.

Based on the overall findings of the PDI, which further refined the total volume of material that needs to be addressed as part of OU1, the addition of residential properties to the OU1 remedy is not expected to significantly change the estimated capital costs to conduct the remedy estimated in the OU1 ROD.

SUPPORT AGENCY COMMENTS

The State of New Jersey concurs with this ESD. The State's letter providing its concurrence is located in the administrative record maintained for the Site.

AFFIRMATION OF STATUTORY DETERMINATIONS

EPA, after consultation with NJDEP, is issuing this ESD to modify the OU1 remedy, which satisfies the requirements of Section 121 of CERCLA, 42 U.S.C. § 9621.

The remedy, as modified by this ESD, will be protective of human health and the environment and will comply with federal and state requirements that are legally applicable or relevant and appropriate to the remedial action.

The modified remedy is technically feasible, cost-effective, and represents the maximum extent to which permanent solutions and treatment technologies can be used in a practicable manner at the Site.

In addition, the modified remedy includes statutory five-year reviews to ensure that the remedy is, or will be, protective of human health and the environment.

PUBLIC PARTICIPATION COMPLIANCE

In accordance with the NCP, a formal public comment period is not required when issuing an ESD. A notice briefly summarizing this ESD will be published in a major local newspaper of general publication in accordance with Section 300.435(c)(2)(i) of the NCP, 40 C.F.R. § 300.435(c)(2)(i) and online at <https://www.epa.gov/superfund/maywood-chemical>.

This ESD and the documents that provide the basis for the decision to include additional properties, increase excavation volumes and to include additional future land uses will be incorporated into the administrative record maintained for the Site in accordance with Section 300.825(a)(2) of the NCP, 40 C.F.R. § 300.825(a)(2). The administrative record file is available for review during business hours at the EPA Region 2 Superfund Records Center, 290 Broadway, New York, NY 10007 (Monday through Friday, 9:00 AM-5:00 PM) and online at: <https://www.epa.gov/superfund/maywood-chemical>.

Evangelista, Pat

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Pat Evangelista, Director

Date

Superfund & Emergency Management Division

U.S. EPA, Region 2

Table 1: Comparison of OU1 ROD Gypsum Area Soil Remediation Goals (RGs) to Current NJ Residential Direct Contact Soil Remediation Standards (RDCSRS)			
	ROD RG (mg/kg)	RDCSRS (mg/kg)	Basis for ROD RG
Benzo(a)anthracene	0.5	5	IGW
B(a)P	0.2	0.5	NRDCSRS
B(b)Fluoranthene	2	5	NRDCSRS
Dibenzo(a,h)anthracene	0.2	0.5	NRDCSRS
Indeno(1,2,3-cd)pyrene	2	5	NRDCSRS
Arsenic	19	19	NRDCSRS based on background
Barium	1,300	16,000	IGW
Chromium	242	242 (hexavalent) 120,000 (trivalent)*	Site-specific IGW
Cyanide	13	47	IGW
Lead	59	400	IGW
Mercury	0.1	23	IGW

* currently there is no RDCSRS for chromium. NJ DEP approach for remediating chromium is outlined in the following document: https://www.nj.gov/dep/srp/guidance/rs/chrome_criteria.pdf

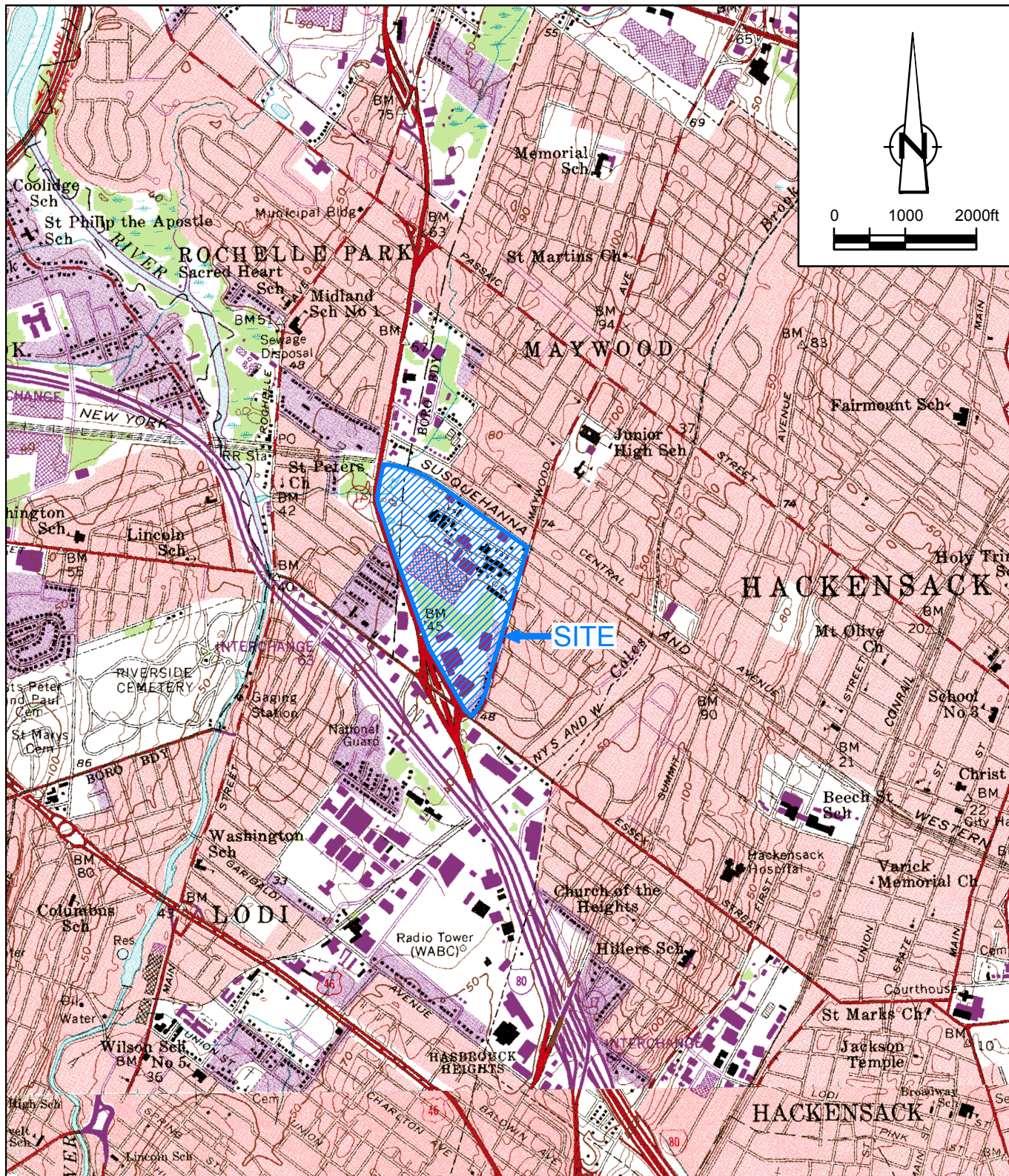
Key:

IGW = New Jersey Impact to Groundwater Soil Screening Levels

NRDCSRS = New Jersey Non-Residential Direct Contact Soil Remediation Standards

Figures:

- 1- Site Location Map
- 2- Site Plan
- 3- Gypsum Area Map



NEW JERSEY

HACKENSACK
WEEHAWKEN



QUADRANGLE LOCATION

figure 1
SITE LOCATION MAP
MAYWOOD CHEMICAL SUPERFUND SITE
Maywood, New Jersey

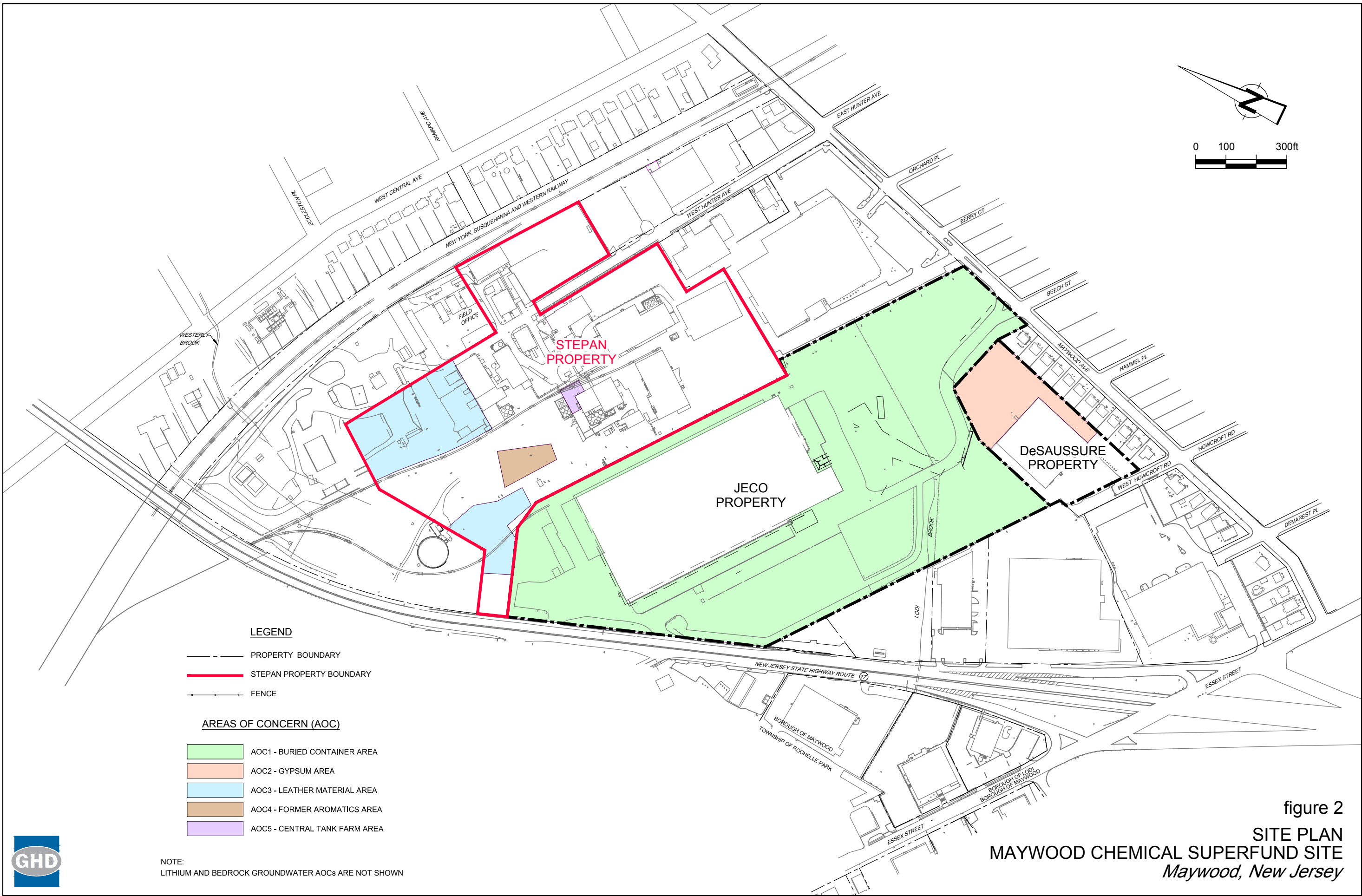


figure 2
 SITE PLAN
 MAYWOOD CHEMICAL SUPERFUND SITE
 Maywood, New Jersey



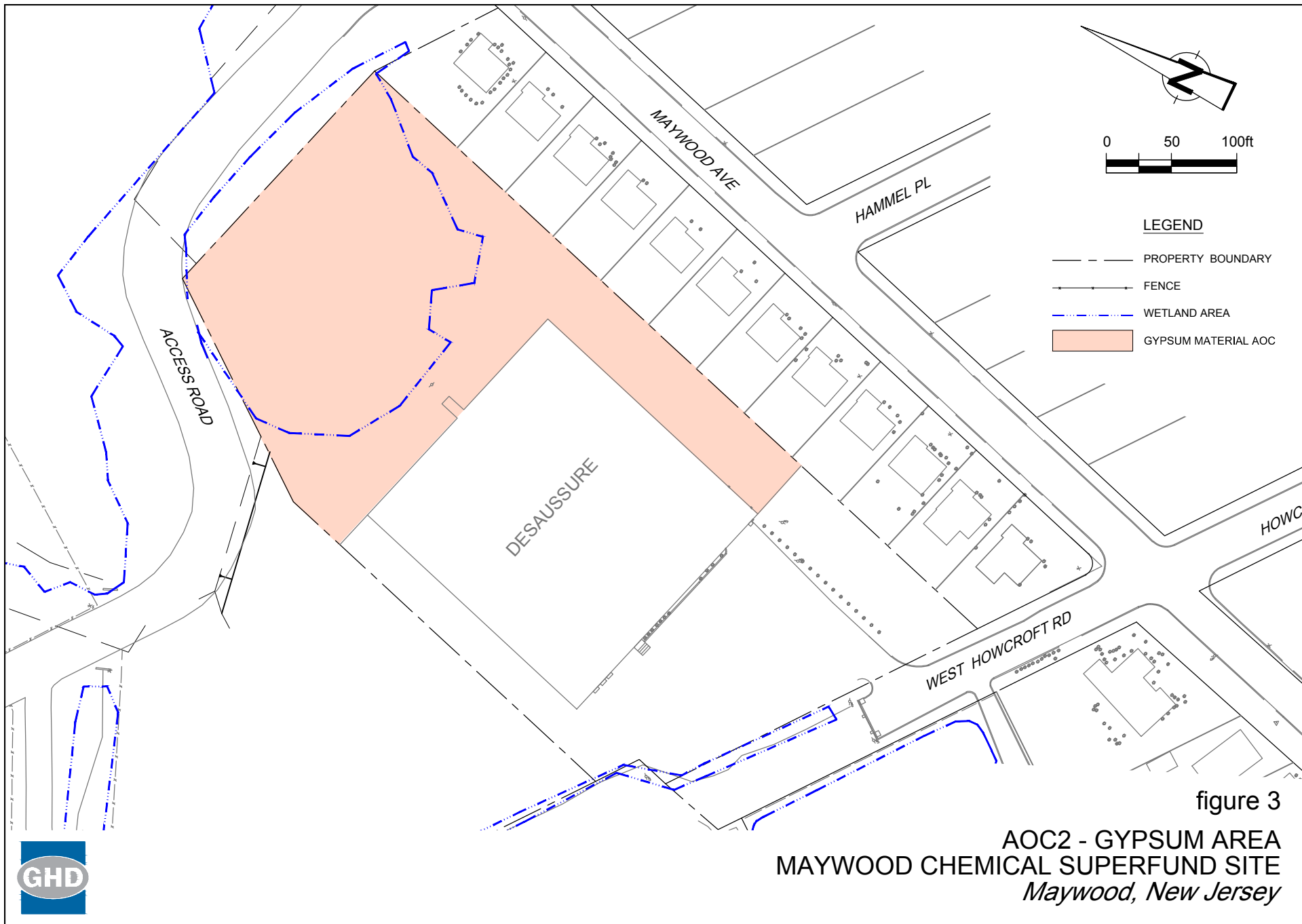


figure 3
AOC2 - GYPSUM AREA
MAYWOOD CHEMICAL SUPERFUND SITE
Maywood, New Jersey

